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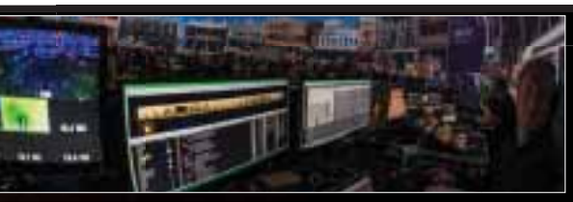

Raise the curtain
Show control technology

Drones take-off
Can AV integrators benefit?

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Presentation tools
Experience counts at Sandvik Coromant

With the pace of change rapidly increasing in the AV industry, Biamp's Shell Haffner tells Anna Mitchell that integrators must have the skills and business models to cope.

A climate of change

Competition is intensifying, margins are squeezed and rapid technology developments regularly change the landscape. That's the life that the average AV integrator needs to get used to according to Shell Haffner, director of product management at Biamp Systems.

Haffner, who has a background in IT and joined Biamp from Xerox, has noted changes in the AV industry over the past year that he has worked for the audio manufacturer and reports a feeling of déjà vu.

"Many of the changes that AV integrators are going through today have played out in the IT industry before," he argues. "IT integrators are used to working in an environment where technology changes on a fairly rapid basis. There have been huge advances in personal computing in a short space of time and when you look at changing technologies - such as security protocols, networking protocols, databases, cloud computing – you realise the IT industry is used to handling rapid transformation."

> *"Many of the changes that AV integrators are going through today have played out in the IT industry before."*
> *- Shell Haffner, Biamp Systems*

Quality audio ensures productivity in business communications

Haffner believes the pace of change in AV is currently not as quick as IT but is moving in the same direction. And with AV/IT convergence, increasingly any changes in IT will affect AV. He believes that one of the crucial keys to managing these changes is training.

"If you do not have the skills in your company to handle new technologies your business will decline," he asserts. "You either need to train or outsource."

Integrators need to look at the best avenues for training; whether that's the need to have staff out of the office, undergo online courses or bring instructors in house. However, most importantly Haffner says that a company must ask themselves how effective the training is.

"You need to know that when you send an employee to a class they will return ready to be productive," he says. "Look for training that is hands-on, that completely prepares them to do the job and leaves them with routes to ask for support or further education."

Haffner offers up VOIP as an example.

"If a company says we have a VOIP system we want you to integrate this AV system into you're looking at a very specific skill set. VOIP has been around for a while, it's blossoming and it's going mainstream really fast.

"It takes years for one of our engineers to be fluent enough to support VOIP systems. It's not something you learn overnight and you need to get in early because it's just going to get worse."

Security is another area that requires specific skills but Haffner believes that very often it's an area that isn't discussed openly.

"An AV integrator should take the bull by the horns and mention it upfront," he advises. "It's important to have the knowledge to conduct an open and honest conversation about security. The integrator should show they understand the pressures an IT department is under and demonstrate how they can help or at least make sure they don't open a security hole."

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> *- Shell Haffner, Biamp Systems*

Manufacturers bear a large part of the responsibility as well notes Haffner. "We as manufacturers need to look for ease of implementation," he says. "Part of that is about fitting into the systems we connect to. On the flipside for integrators and installers, they need to look for products that are flexible and have the right features and capabilities to allow for future upgrades and fit into evolving systems."

Both examples that Haffner offers to demonstrate the importance of training are a result of the increase in networked products. This is forcing AV integrators to work closely with IT departments but it's also blurring the lines between the two disciplines.

With the collision of AV and IT the recurring fear is that IT will snatch portions of staple AV work so AV integrators need to look at their unique skill sets.

"One of the things I admire about the AV industry is a notion of quality," continues Haffner. Particularly in the audio side of the business he notes a desire to create "good sounding installations" and argues that high quality systems will be a defining factor for AV's future success.

"Integrators must insist on high quality audio because it helps people communicate," he argues. "If a message doesn't get through then a meeting will not accomplish its goals. Fundamentally an insistence in audio quality is about the productivity of a meeting itself."

"Audio is only easy to AV integrators," says Haffner. "Setting up a room is very experience driven and we sometimes don't appreciate that the knowledge of how audio works is different to anything else that an IT integrator has to do. It's often said audio is more like an art than a science and I believe there is a certain truth to that. I don't believe that an IT integrator can take on that skillset in a timely fashion."

Haffner returns to the theme of training, adding that partnerships can also provide a route to adding skills. He predicts an increasing number of partnerships between IT and AV companies.

And partnerships are also beneficial to meet the changing needs of global businesses.

"When you have a corporation that has offices in multiple locations a smaller integrator cannot handle service and support. I imagine we'll see a lot more AV businesses working together in a co-operative basis and I also see more consolidation due to these trends.

"However, it's not about thinking 'I need to buy somebody or need to sell my business'," he adds. "It's about high quality service and giving your customers solutions to their problems. That's what should drive decisions, not consolidation for the sake of it."

Competition across the market is heating up, says Haffner: "Shrinking project time frames and rapidly changing technology trends are putting a lot of pressure on revenue and margins and it's going to get a lot more competitive. My council to an integrator is look at your strategic business, figure out what your strengths are and figure out where your weaknesses are and shore them up."

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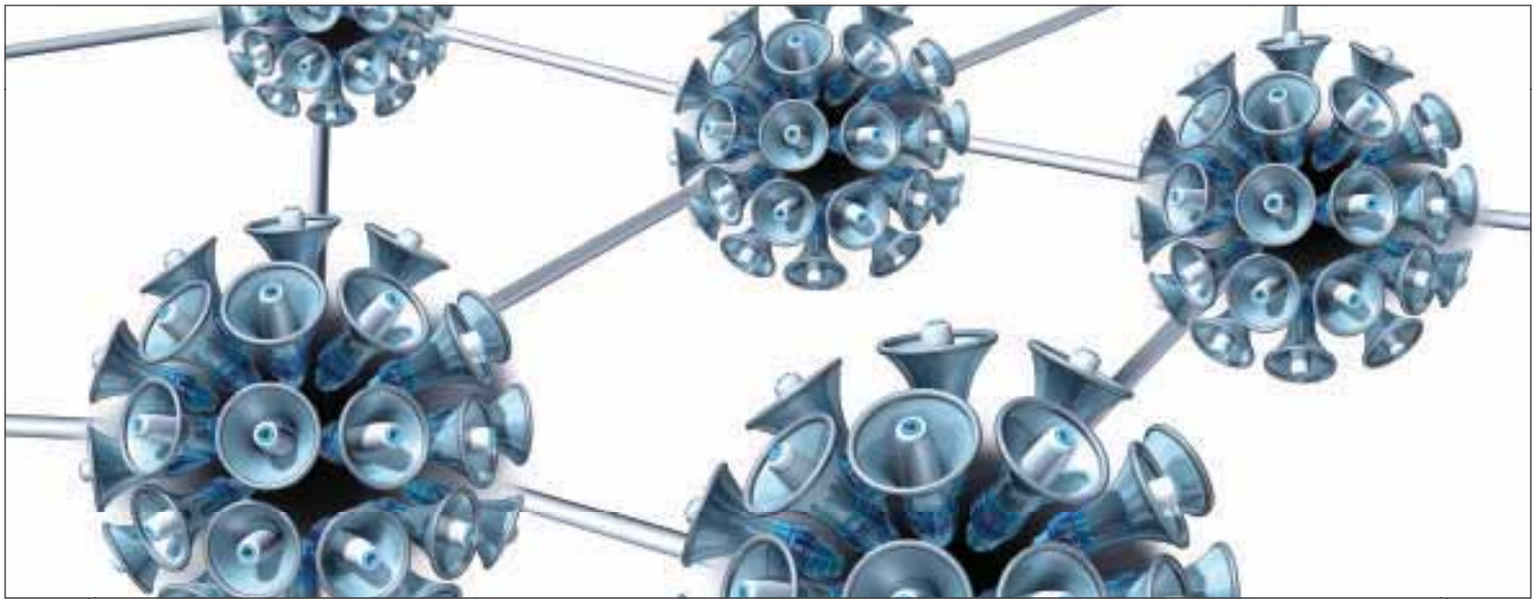
Videoconferencing is available to companies more easily and cheaply than ever before. Nial Anderson examines the rise of peripherals that ensure audio quality is up to scratch.

Sound networking



The widespread deployment of integrated cameras in desktop PCs and mobile devices, along with the emergence of software like Microsoft Lync and Skype, has succeeded in bringing video-conferencing to the masses.

Companies no longer need to invest in one expensive, integrated conferencing room for their offices and can make more areas available for videoconferencing at a more affordable cost.

But quantity of course doesn't equal quality and when important business deals are being discussed, the rudimentary microphones and speakers in computers and speakerphones can't deliver the professional performance expected in such situations. It is generally accepted that between video and audio, audio is the most important element to get right – especially in the case of communication in a conferencing scenario.

While visual communication can aid meetings, having a situation where speech is degraded or delayed wastes everyone's time. In the professional environment where the integrator will be installing or supplying equipment a minimum level of quality will be expected. Software and the simple onboard mics and speakers within PCs and laptops cannot usually adjust for things like different room sizes that may not have good acoustics and issues like echo cancellation. This situation has opened up a niche market for conferencing peripherals that interface with existing conferencing systems to deliver first-rate audio.

> *"Microsoft Lync has been driving this move away from the fully integrated videoconferencing systems with higher ASP."*
> *- Tim Root, Revolabs*

"Microsoft Lync has been driving this move away from the fully integrated videoconferencing systems with higher ASP," explained Tim Root, CTO and executive VP of business development at Revolabs.

"Companies have been deciding that they don't need to spend all that money for these complicated rooms, they're just using a PC and couple of peripherals.

"There's a lot more video-enabled, UC-based spaces being created but they're doing it at a much lower cost point. Instead of one specialised room, they will now have several."

As well as lower cost, technology in mobile devices has now reached a point where individuals can join in on videoconferencing sessions while on the move.

"People working from home is also a big driver," Root continued.

"We were speaking with a company a few weeks ago and I was shocked - 30% of all the inter-company communication now is done using video."

Justin O'Connor, Biamp's product manager for audio systems, added: "Traditional videoconferencing systems are continuing to play a smaller role in AV installation. Hard codecs for videoconferencing are not the way of the future and this is freeing up the rest of the AV system to be designed for other efficiencies and benefits."

So how did peripherals evolve to meet the challenges that have emerged in this shift toward using desktop computers and devices? In the case of Revolabs, the solution was to create a new generation of speakerphones with more power, a simple plug-and-play approach and more recently, consolidating UC >

< tools and telephones in one unit.

"What we recognised when we looked at the audio peripherals for USB speaker phones, is that they were all targeted at travelling sales reps and were fairly small and all USB-powered," Root explained.

"With USB power you get something like five volts at 500 mA which isn't a lot of juice. You'd take two of those four watts and apply it to your processing so there's nothing there to drive the speakers. We did the analysis on how much energy was coming out of those little speakers and they tended to be 70db SPL range. That would be the typical speech level from a person fairly close to their mouth.

"Our perspective was that you'd often have someone on a cell phone who is remotely calling in and is hard to hear to begin with and you wouldn't have any juice to put any gain on that sound.

Revolabs has developed its FLX UC 500 and 1000 speakerphones with this in mind. The latest model, the FLX UC 1500, has just been released. How did the company develop it to meet the needs of videoconferencing?

"The first step was to design a real speaker for the speakerphone with a tweeter and a three-inch mid sub," Root explained.

"The tweeter makes the high frequency 's' noises jump out at you right away because you have the right part to accentuate that part of the frequency spectrum. The mid-sub drives the lower frequencies and fills the room. When you drive so much sound coming out of the speaker the echo canceller has to work a lot harder."

Root explained that combining UC systems with the traditional desktop phone made sense for Revolabs' customers.

"A lot of our early customers that are Fortune 100-sized players companies that have adopted UC in the conference rooms where they also have a phone next to them," he said.

> *"Many multipoint conferencing technologies will resort to the lowest common denominator for bandwidth."*
> *- Justin O'Connor, Biamp*

"They are now realising they can pull these two devices out and replace it with a FLX UC 1000, plug the USB into their UC desktop client and then plug their network interface in for standard phone calls which leaves only one device. They can also bridge the calls; they can make a phone call and they can be on a UC call at the same time and the audio will mix."

Last year Sennheiser launched its TeamConnect audio conferencing product with an emphasis on boosting audio in meetings. The offering consists of a central unit with audio DSP, an interface where participants can connect their devices, the company's SpeechLine microphones and active loudspeakers. The system bridges multiple communication types such as mobile phone, landline andUSB for instant connection to soft clients used for video conferencing.

"It is a full end-to-end product," said Nick Pemberton, market development manager for Sennheiser UK's professional systems division.

"That includes a mic hub, SL mic cable which works with all smart phones and devices, IOS dialing and no driver upload or admin requirements for instant integration to the soft client."

It can integrate Sennheiser radio mics, ADN-W discussion systems as well as be controlled via IOS devices and large-scale media control systems such as those from Crestron.

Companies that already have AV systems installed can take advantage of digital signal processing, if installed, to act as a backbone that can handle the challenges presented by videoconferencing with desktop UC clients. Biamp's Tesira system is an example of this.

"Automixers, automatic gain compensation, dynamic and adaptive filtering, and our SpeechSense technology add to our products being best-in-class for audio processing," O'Connor explained.

"It is our full set of tools, combined with the access we give system designers for deploying these tools, that enhances the videoconferencing experience for participants."

Meeting participants dialing in from remote locations without professional grade devices, or with insufficient bandwidth, can present a further issue when it comes to audio quality in videoconferencing.

"Many multipoint conferencing technologies will resort to the lowest common denominator for bandwidth," O'Connor explained.

"Mobile technology, even if it is not on the move, can limit the fidelity for the entire conference. Keeping this in mind and watching how this trend is evolving is key for our industry. Audio electronics cannot make up for losses in bandwidth but Tesira can help ensure that the system reproducing any audio coming into or >

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[L-R] Revolabs FLX UC 1500, Sennheiser TeamConnect, Biamp's Tesira family

< going out of the room in which it is installed is at its best from an audio fidelity standpoint."

Pemberton outlined TeamConnect's abilities in this situation.

"The TeamConnect SL mic cable allows mobile-to-mobile communication and makes use of the AEC," he said.

"In addition, we can apply separate processing to deal with EQ and dynamic differences, and by integrating mobile device connection it provides redundancy when all else fails."

Now that videoconferencing has moved beyond dedicated UC systems bought and installed in a small number of purpose built areas, less thought is sometimes given to the acoustics of areas where videoconferencing goes on. Any audio peripheral or supporting system must also be able to cater for the flexible nature of UC systems that can be deployed easily, including different sizes of rooms and varying numbers of participants.

"The UC 500 and UC 1000 have four microphones for a 20ft of pickup," Root explained.

"The UC1500 adds two additional extension microphones, you can now cover a 20x34 sized room. The AEC has the ability to detect the size of the room or stated another way the reverb of the space. The algorithm dynamically adjusts for the room size so you will never have echo issues. Other products that do not do this exhibit a sound after the remote person speaks, it has been described as a "barking dog" sound."

Pemberton said that TeamConnect uses a variable 'noise reduction' algorithm to assist in this situation.

"It also uses advanced gating, EQ, level and AEC methods, to help deal with these issues. Most importantly, the Sennheiser SpeechLine series microphones have been optimised for in and on table meeting room applications and therefore are focused on speech intelligibility."

TeamConnect can handle eight microphones with AEC for up to 16 people. If ADN-W is integrated this can be upped to hundreds of mics.

Biamp's O'Conner explained that ideally acoustic problems should be solved acoustically.

"Asking the audio system to solve bad acoustics is a bit like asking an artist to paint with poorly pigmented paints," he said.

"There are limits to what can be made up for with the electronics. That being said, Tesira does provide enhancement for noise reduction, high pass filtering, automixing, equalisation, speech detection and various other innovations that can combat a number of acoustic challenges and problems."

"Our Tesira platform is highly scalable up to sizes that are likely far beyond typical for videoconferencing."

Desktop-based UC is here to stay. Going into the future, Root predicts the market for peripherals targeting audio quality will continue to evolve and thrive.

"We will continue to see more and more devices that are targeting the PC-based architectures," he said.

"We will see more BlueTooth in these systems too so you don't have to use wires to connect up and cameras with USB interfaces on them.

"Some of the new Wi-Fi standards are coming out with super-high frequency 60GH – that will enable connectivity within the room of all the peripherals using those frequencies."

This month global solutions kicks off with a look at an audio and lighting installation at Europe's biggest theme park before continuing an AV installation world trip.

MOIPARK Istanbul – Europe's biggest theme park

Turkey – Europe's largest indoor theme park MOIPARK has opened at the Mall of Istanbul.

Integrator Asimetrik designed and installed the whole 12,000 m2 indoor area's general sound system. QSC loudspeakers were chosen for the task and 245 were installed in artificial 'Rockwork' rocks.

The client required dedicated zone controls at each ride, and synchronisation of sound and light systems when they are triggered. The client wanted to control each zone's volume, mute/unmute and additional features from one interface, and that interface had to be mobile using Wi-Fi, with changes in real time.

The QSC Q-SYS system was used for this task. The venue was split into two different system rooms and racks, and each two rooms had a dedicated I/O frame for sound management. Alcorn McBride V 16 Pro Show Controller equipment was used for sound and light synchronisation. At each ride, when the sequence is initiated, synchronised pre-recorded sound and lighting shows begin.

Visitors can dance on the interactive dance floor – the first of its type in Turkey - with random lighting tricks. QSC active line

array speakers and subwoofers are placed on and around the stage to distribute sound powerfully and equally.

In total Asimetrik created 22 different zones for 22 rides with numerous music and lighting scenarios in the huge indoor area that are synchronous, with equal SPL, with high intelligibility all around park. With a backup system the QSC System can run without any interruption around the clock. All the systems in the park can be monitored and managed from one point easily with a graphical user interface created by Asimetrik.

L-Acoustics powers up Eindhoven music venue

The Netherlands – The Muziekgebouw Frits Philips Eindhoven upgraded its audio system after a full interior and exterior redesign.

Sales All designed a system based on L-Acoustics' KARA system. The 22-box, two-way, L/R KARA system was installed, complemented by eight two-way XT coaxial loudspeakers. Low end reinforcement came courtesy of SB18 subwoofers, which were configured cardioid, to avoid slap-back echoes from the sub-low frequencies from the rear side of the stage. The system is driven via LA8 amplifiers, while a Dolby Lake LM44 processor was chosen for control.

The centre often hosts philharmonic orchestras and soloists as well as contemporary artists and welcomes more than 160,000 guests each year.

Audio overhaul at Shakespeare Street

UK – Integrator Roche AV has worked with distributor PolarAudio to install a conferencing system at Nottingham Trent University.

Two Renkus Heinz ICONYX IC-8 line array loudspeakers were installed alongside a Cornered Audio C12 PNC Subwoofer powered by MC2 T-500 amplifier.

A wireless beyerdynamic Quinta system, comprising a Quinta CU Central Control Unit and 19

Quinta MU31 microphone units, was chosen for the Courtroom's conferencing requirements.

In a smaller boardroom, designed for video and tele-conferencing, ten MPR 210 Revoluto Microphone units, controlled by Biamp's Audia FLEX digital audio platform, were installed.

AudioSonic kits out Cinema 8

Switzerland – AudioSonic has installed Fohhn speaker systems in four Dolby Atmos cinema halls at Cinema 8 in Schöftland, Switzerland.

The complex includes restaurants, bars, a hotel, a bowling alley, an open air cinema and four movie theatres.

AudioSonic installed 130 Fohhn Linea LX-100 line source speakers, 30 Fohhn AT-50 speakers, 20 Fohhn D-4.1200 power amps, six Fohhn PS-9 subwoofers, more than 40 Fohhn D-4.750 power amps, 12 Fohhn AS-40 subwoofers, 24 Fohhn AT-35 speakers and 44 Fohhn CS-10 ceiling speakers.

Hanno Ziesche of AudioSonic GmbH was responsible for the room acoustics as well as the conceptualisation of the loudspeaker system.

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